



**Sustainable Drainage
Strategy Design Report**

**Broadwater Farm Estate,
Tangmere (Main Block),
Tottenham,
London, N17 6NG**

OUR REF: 26015

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**Proposed Redevelopment at Broadwater Farm Estate,
Tangmere (Main Block), Tottenham,
London, N17 6NG**

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1. Introduction

The following report has been prepared to outline the proposed surface water strategy to discharge condition 24 of planning ref HYY/2022/0823 in relation to the proposed development at Broadwater Farm Estate, Tangmere (main block), Tottenham, London N17 6NG.

Planning permission has been granted to demolish the existing buildings and erect 2 blocks of 7 storeys (ground floor and 6 floors) building comprising of 116 residential housing units and 381m² area of retail space with private gardens, and communal courtyards

Figure 1 shows the location of the site outlined in red.



Figure 1: Site location (Google Maps)

The site is set in a residential area which is bounded by highways to the west (Gloucester Road), the north and east (Willan Road) and residential housing to the south.

The existing site total area 5094m² is classified as 100% impermeable, consisting entirely of hard standing and building footprints. In contrast, the proposed scheme introduces a significant increase in permeable surfacing, effectively reducing the site's impermeable area to 83%. This will be achieved through the integration of:

- Soft Landscaping: Inclusion of lawn areas and communal courtyards.
- Source Control: Strategically placed permeable zones designed to intercept and infiltrate surface water runoff.

See the Catchment Area plan drawing in Appendix K and below-ground drainage drawing by MWP included in Appendix A.

1.1 Development Proposal

The proposed development involves the construction of two 7-storey blocks (comprising ground plus six upper storeys), delivering 116 residential units and 381m² of retail floorspace. The scheme further incorporates high-quality private gardens, communal courtyards, and dedicated car parking facilities as illustrated in figure 2.

This Drainage and Sustainable Drainage Systems (SuDS) Strategy has been prepared in accordance with the National Planning Policy Framework (NPPF), the London Plan, and the policies and guidance of the London Borough of Haringey as Lead Local Flood Authority (LLFA). The strategy follows the London Plan drainage hierarchy, prioritizing the use of infiltration and on-site attenuation where feasible, prior to controlled discharge to the public sewer network.

Surface water runoff from the proposed development will be managed to ensure that post-development runoff rates and volumes do not exceed existing conditions. The proposed SuDS measures will provide attenuation, water quality treatment, and flow control, with the objective of reducing flood risk both on-site and downstream. Where practicable, blue-green infrastructure will be incorporated to deliver additional environmental and amenity benefits.



Figure 2: Proposed Development Plan

1.2 Aim - Planning Permission

Planning permission (Application Ref: HYY/2022/0823) was granted by the London Borough of Haringey Planning Department, along with a set of conditions for the proposed development at Broadwater Farm Estate.

This report aims to discharge condition 24 which relates to the site's drainage strategy. Condition 24 is stated as follows:

24 No development above ground level within each Phase shall take place until a detailed Surface Water Drainage scheme for that Phase has been submitted and approved in writing by the Local Planning Authority. The detailed drainage scheme should also accompany a detailed drainage plan appropriately cross-referenced to supporting calculations for the development and they should clearly indicate the location of all proposed drainage elements demonstrating that the surface water generated by this development (For all the rainfall durations starting from 15 min to 10080 min and intensities up to and including the climate change adjusted critical 100 yr. storm) can be accommodated and disposed of without discharging onto the highway and without increasing flood risk on or off-site. The scheme shall include rainwater harvesting, where possible. The development shall thereafter be completed in accordance with the approved details.

Reason: To ensure that the principles of Sustainable Drainage are incorporated into this proposal and maintained thereafter.

2. Topography

A topographical survey of the site was carried out by Terrain Surveys Ltd in April 2018. The survey confirms that the external levels fall from approximately 16.58 in the south to approximately 15.98 in the north. Refer to topographical survey in Appendix B.

3. Existing Drainage Strategy

3.1 Public Drainage

According to Thames Water asset records, the site is served by established foul and surface water infrastructure. The existing drainage strategy utilizes the site's natural topography, with primary flows directed toward the north.

Foul Water Network

The foul water system originates from several manholes at the southern extent of the site, conveying effluent northwards via two main routes:

- Gloucester Road: A longitudinal sewer running south to north.
- Tangmere Main Block Site: Internal drainage runs that flow northwards to intercept the Willan Road infrastructure, which then conveys flows from west to east.

Surface Water Network and Outfall

Surface water runoff is managed via a sub-surface network that outfalls into the Moselle Culvert. This culvert is located at the northern boundary, flowing in a north-easterly direction. The catchment is divided into two primary conveyance corridors:

- Gloucester Road Corridor: Surface water flows south to north, discharging directly into the Moselle Culvert.
- Tangmere/Willan Road Corridor: Internal site drainage connects to the Willan Road network, which subsequently discharges into the culvert at the northern extent of the site.

Refer to Figure 3 and Thames Water Asset map in Appendix C.



Figure 3: Thames Water Asset Map

3.2 Diversion/Abandonment

To facilitate the proposed development, the redundant internal drainage assets within the Tangmere Main Block site will be decommissioned as follows:

- Internal Foul Infrastructure: The eastern foul sewer run, which currently traverses the site from south to north, will be abandoned.
- Internal Surface Water Infrastructure: Internal surface water drainage runs within the Tangmere site boundary will be abandoned to clear the building footprint.

Application to abandon both runs are in progress under Thames Water Section 116, Refer to drawing in Appendix D. All abandonment and diversion works will be carried out in strict accordance with Thames Water's technical specifications to ensure formal adoption and sign-off.

3.3 Pre-Development Runoff Rates

The existing site area 5094m² is classified as 100% impermeable, comprising entirely of hardstanding and building footprints. In contrast, the proposed scheme significantly enhances site permeability, reducing the impermeable area to 83%.

Table 1 details the existing discharge rates for the 1 in 1, 1 in 30, 1 in 100, and 1 in 100-year + 40% climate change allowance events. These rates were calculated using the Modified Rational Method; please refer to the full calculations in Appendix E.

Table 1: Impermeable Area Existing Run-off Rates

Storm Event (1 in x yr)	Discharge from permeable area of site (l/s)	Discharge from impermeable area of site (l/s)	Total Discharge from Site (l/s)
1	0	54.17	54.17
30	0	146.57	146.57
100	0	203.29	203.29
100+40%CC	0	284.60	284.60

3.4 Greenfield Run-off Rates

Policy 5.13 of the London Plan (2016) requires development proposals to restrict surface water discharge to Greenfield runoff rates wherever feasible. In accordance with this requirement, surface water discharge from the site has been designed to achieve Greenfield runoff rates calculated using the IH124 method, with the calculations provided in Appendix F and the resulting rates summarized in Table 2

Table 2: Greenfield Run-off Rates

Greenfield Run-off Rates l/s					
100	Qbar	1 in 1	1 in 30	1 in 100	1 in 200
100+40%1CC	0.8	0.7	1.9	2.6	3.1

3.5 Proposed Discharged rates.

The calculated Obar Greenfield runoff rate for the site is 0.8 l/s. However, discharging at this rate is considered impractical from an operational and hydraulic perspective due to the increased risk of blockage associated with very low flow rates. As such, it is proposed to restrict surface water discharge to 2.5 l/s.

This proposed discharge rate is lower than the calculated 1 in 30-year Greenfield runoff rate and remains below the 5.0 l/s minimum discharge rate referenced in the Environment Agency Report SC03021. The approach therefore represents a pragmatic and policy-compliant solution that balances Greenfield runoff control with long-term operational reliability.

Table 3 shows the site's existing discharge rates, with the proposed discharge rate as a comparison.

The proposed surface water drainage strategy is considered compliant with London Plan Policy 5.13 and is acceptable to the Lead Local Flood Authority and Thames Water.

Table 3: Comparison of Existing and Proposed Run-off rates

Storm Event (1 in x yr)	Existing Discharge from Site (l/s)	Proposed Discharge from Site (l/s)	Reduction (l/s)
1	54.17	2.5	95%
30	146.57	2.5	98%
100	203.29	2.5	99%
100+40%CC	284.60	2.5	99%

Table 3 shows that during rainfall, the volume of water that will be discharged post-development from the site would be controlled to 2.5 l/s, this equates to a reduction between 95-99% less than the current discharge rate. This complies with Ciria C753, The London Plan, and Policy CC3 of the Local Plan as it reduces the rate of discharge of water into the local sewers/rivers thus reducing the risk of flooding further downstream.

See Appendix G for full Causeway storage calculations.

4. MWP Proposed Drainage Strategy

MWP has proposed a detailed strategy for the surface water drainage at Tangmere (Main block) — see the below-ground drainage drawing included in Appendix A; please also refer to the Thames Water S106 consent to connect to the public sewer in Appendix J.

Causeway Flow drainage modelling software was used to simulate the drainage infrastructure, see the full report from the software included in Appendix G. The software was used to determine the size of the attenuation required, based on the site proposed discharge rates.

4.1 SuDS Assessment

A hierarchy that lists the most to least preferred solutions for surface water runoff management is included in The London Plan. 4 shows the hierarchy and explains the reasons for feasibility/non-feasibility for the proposed drainage at the proposed building at Tangmere (Main block).

Table 4: Surface Water Discharge Hierarchy (The London Plan)

SuDS Techniques		Feasibility	Explanation
1	Store water for later use.	x	There is no room within the site to provide adequate water storage for later use.
2	Use infiltration techniques, such as porous surfaces in non-clay areas.	x	From borehole data, we assume that the ground around the site is made up of clay – therefore infiltration rates may be low.
3	Attenuate rainwater in ponds or open water features for gradual release.	x	There is insufficient space to provide ponds for the entire site therefore this is not feasible.
4	Discharge rainwater direct to a watercourse.	x	There are no viable watercourses to discharge to near the site.
5	Discharge rainwater to a surface water sewer/drain.	✓	This will be used to discharge runoff from the site at a controlled rate. (refer to sections 3.5)
6	Discharge rainwater to the combined sewer.	x	N/A as there is no combined drainage system nearby.

From Table 4 we can infer that we have limited methods to manage surface water runoff. The following sections explain in detail how SuDS techniques will be implemented at Tangmere.

5. Condition 24

This section expands on the specific requirements by Condition 24, refer to section 1.2 for the full planning condition.

5.1 Incorporating Permeable Surfaces.

Geological data from nearby borehole records indicates a site profile dominated by cohesive clay deposits. These subsurface conditions exhibit negligible infiltration potential, rendering the site unsuitable for ground-disposal SuDS such as soakaways.

Permeable paving has been purposefully omitted from the design due to these ground conditions. In high-plasticity clay, the introduction of surface water into the pavement sub-base—even in a 'tanked' system—presents a significant risk of subgrade softening and structural deformation. To ensure the long-term integrity of the hardstanding, the strategy focuses on managed surface flow to dedicated collection points.

In place of open attenuation features like swales or ponds, which are precluded by the site's constrained urban layout, the drainage strategy utilizes the ground floor soft-landscaped courtyard as an initial management zone. Surface runoff from pedestrian footpaths is directed into these landscaped areas to facilitate interception, natural filtration, and evapotranspiration.

To manage peak storm events, the primary drainage network conveys remaining runoff to an on-site attenuation tank. Discharge from this tank is strictly regulated via a Hydro-Brake, limiting the outflow to the greenfield equivalent rate (2.5l/s) before entering the local sewer network. This combined approach of soft-landscape source control and mechanical attenuation provides a robust, site-specific response that satisfies the requirements of Condition 24.

5.2 Incorporating Green & Blue Roofs

5.2.1 Green Roofs

Green roofs have been incorporated into the Tangmere Building. The approved scheme includes 80mm substrate green roof area 2104m² across Tangmere roof levels. Refer to Catchment Area Plan drawing in Appendix K.

5.2.2 Blue Roofs

It is not proposed to introduce Blue Roofs to Tangmere Building –

- Blue roofs would impose additional loads on the building, therefore would require columns/foundations to increase in size to accommodate.
- Blue roofs would require extra maintenance, possibly by special contractors, this may not be practical for blue roof with a small area.
- From an architectural perspective, attempting to include a blue roof would require raising the building's height so as to not overwhelm the parapets.

For the reasons outlined above, we have not included blue roofs for this strategy. We believe that the other SuDS components will be sufficient to clean and attenuate the runoff for this site. This strategy aligns with the original SuDS strategy prepared by Elliot Wood as part of the approved scheme, summarised in the table extracted from Broadwater Farm Estate, Tottenham N17 6NG 2190487 SuDS Report prepared by Elliot Wood In figure 4 below.

Table 12 – SuDS Evaluation

SUDS Technique	Y/N	Comment
Green and Blue Roofs	Y	Green roofs are proposed to provide biodiversity and amenity benefits
Rainwater reuse	N	Rainwater reuse is not considered viable as the majority of the roofs will be surfaced with green roofs, which means the run-off is not appropriate for use with rainwater harvesting systems without complex filtering processes. On projects of this nature which have complex phasing it is difficult to be able to provide a centralised RWH system. When considering rainwater re-use from a sustainability perspective (The NPPF principles environment, social and economic) this translates as an order of priorities; reduce, reuse, recycle. For this project it makes much more sense to use less water (by using water efficient appliances) than it does to install a rainwater harvesting system.
Infiltration devices	N	The site is underlain by London Clay Formation which is not suitable for infiltration
Permeable surfaces	N	Cohesive clay subgrades are prone to softening and instability if saturated, rendering sub-base storage technically unviable.
Basins and ponds	N	The spatial configuration of the development prohibits the use of basins and ponds.
Filter strips and swales	N	The spatial configuration of the development prohibits the use of filter strips and swales.
Filter drains	N	The spatial configuration of the development prohibits the use of filter drains.
Below Ground Tanked systems	Y	Below ground attenuation tanks are proposed due to restrictions of space on site.

Figure 4: table extracted from Broadwater Farm Estate, Tottenham N17 6NG 2190487 SuDS Report

5.3 Attenuation Storage

5.3.1 Attenuation Tank Size

The proposed site layout provides 0.111 hectares (23%) of permeable soft landscaping, resulting in a total impermeable drainage area of 0.392 hectares. Refer to Catchment Area Plan in Appendix K

The greatest storm analysis was a 1 in 100-year storm event, an additional 40% was included in calculations to account for an increase as a result of climate change. A total (minimum) attenuation volume of 259m³ to 347 m³ would be required assuming the above (with a discharge rate of 2.5 l/s).

Causeway Flow software was used to calculate the approximate volume of attenuation required for the 1 in 100 +40% CC storm event (using 2.5 l/s as a discharge rate), see Figure 5 for Causeway Flow estimate.

Storage Estimate

Return Period (years)

Climate Change (%)

Impermeable Area (ha)

Peak Discharge (l/s)

Infiltration Coefficient (m/hr)
(leave blank if no infiltration)

Required Storage (m³)

100

40

0.392

2.500

Calc

from

to

272

340

Figure 5: Causeway Flow attenuation storage estimate

The proposed extensive green roof covers a total area of 2104m² with an 80mm substrate depth, providing a total media volume of 168.32m³. Based on industry-standard volumetric retention rates for extensive systems (typically 30%-40%), the roof is estimated to provide a storage and attenuation capacity of between 50.5m³ and 67.3m³.

This significantly reduces the total runoff volume and peak discharge entering the downstream network, as detailed in the calculations below.

Total Substrate Volume : 2104m² x 0.080m = 168.32m³

Green roof substrates are engineered to be porous. For an 80mm extensive system, the water retention capacity typically ranges from 30% to 40% by volume:

Minimum Retention (30%): 168.32m³ x 0.30 = 50.5m³

Maximum Retention (40%): 168.32m³ x 0.40 =67.3m³

The volume attenuated within the storage tank can therefore be reduced, we propose to provide storage of 237m³.

5.3.2 Attenuation Tank Location

The attenuation tank is located to the northeast of the courtyard. Runoff from the entire site is discharged into the tank via the drainage network before it is attenuated and discharged in a controlled rate.

The proposed tank covers an area of 267m² x 0.914m deep, and assuming 97% void capacity, the tank provides 237m³ of attenuation.

The size of the attenuation tank is limited as the area is bound by the building footprint, the concrete tower crane base, proposed trees/soft landscaping, and the existing neighboring building.

5.4 Controlled Rate of Surface Water Discharge (Hydrobrake)

As mentioned above, the discharge rate of the surface water runoff from the site will be controlled to a maximum rate of 2.5l/s. To achieve this rate, a Hydrobrake (or similar flow control device) will be installed.

This discharge rate of 2.5 l/s has been determined as the greenfield runoff rate, calculated in accordance with the London Borough of Haringey SuDS Design requirements for LLFA Technical Assessment guidelines, CIRIA guidance, and recommendations from Thames Water as outlined in the pre-planning enquiry.

See Appendix A for MWP’s Below Ground Drainage Layout for the Hydrobrake location.

6. Causeway Flow Analysis

MWP used Causeway Flow drainage modelling software to simulate the drainage strategy in different intensity storm events – see Appendix G for the full report.

From the results shown in Appendix G, we can determine that the proposed SuDS drainage infrastructure will be able to withstand each of the inputted flood events: 1 in 1-year storm, 1 in a 30-year storm (plus 40% CC), 1 in 100-year storm event (with 40% CC).

We have designed the SuDS drainage components for a 1 in 100-year + 40% CC storm event, therefore (assuming 100% efficiency of the components) the drainage devices should surcharge during storm events however major flooding should not occur on site.

7. Exceedance

Exceedance flows arising from rainfall events greater than the 1 in 100-year design storm, including a 40% climate change allowance, will be directed away from buildings, and safely managed within the on-site landscaped areas. Flow paths will route water towards low points within the courtyard and external amenity areas. All exceedance flows will be contained within the site boundary and will not discharge onto neighbouring land or the public highway (refer to Appendix H for Exceedance Plan)

8. Operation and Maintenance of SuDS Infrastructure

The responsibility of the drainage and SuDS infrastructure will be handed over to the property owners/building management once construction is completed. Operation and maintenance tasks must be carried out as per the recommendations as this will ensure the effectiveness of the components.

As a guide, MWP has compiled a set of general operation and maintenance tasks extracted from Ciria C753 – see Appendix I for information. It must be noted that this compilation is for general operation and maintenance, for more detailed information the manufacturer's manuals must be read.

9. Conclusion

In conclusion, this report has expressed how the outlined drainage strategy has incorporated a variety of SuDS techniques, and why we have selected feasible and suitable options for the proposed development at Broadwater Farm Estate.

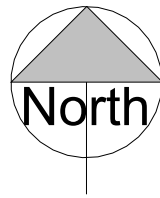
- See MWP's proposed below-ground drainage layout included in Appendix A.
- Causeway Flow modelling software has been used to simulate various storm events (up to a 1 in 100 years + 40% CC event) to support the proposed drainage strategy (see Appendix G for the report).
- All of the buildings collected runoff from the roof and external areas are piped through the drainage network, then through the attenuation tank before being discharged into the Thames Water manhole at the Northeast outside of the site on Willan Road, at a maximum controlled rate of 2.5 l/s
- The green roof is implemented to attenuate peak discharge and increase the time of concentration for surface water runoff.
- The proposed attenuation tank volume is 237m³, see Drainage Layout in Appendix A for tank location.
- Typical operation and maintenance schedules explained and considered - specific device maintenance methods must be provided by the manufacturing company (see Appendix I).

The drainage strategy has been modelled and detailed, it is our opinion that the drainage strategy, as per the below ground drainage drawing included in Appendix A, provides an effective method for dealing with the surface water on site.

For the reasons outlined in this report, we believe that planning conditions 24 should be discharged.

Appendix A

MWP – Below Ground Drainage Layout

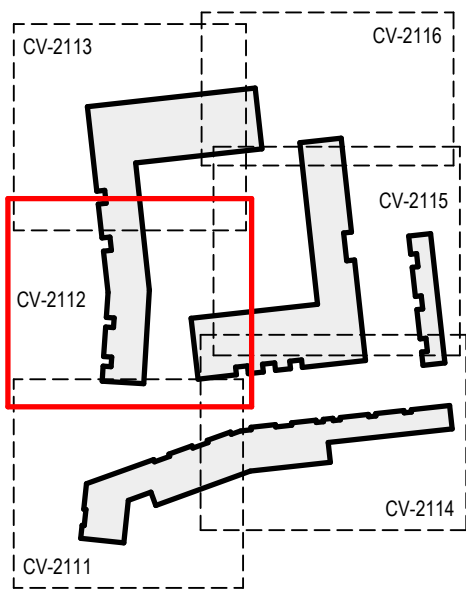


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6. ALL TEMPORARY WORKS TO CONTRACTORS DETAILS.
7. CONTRACTOR TO APPROVE ALL SET OUT INFORMATION PRIOR TO CONSTRUCTION.

DRAINAGE LEGEND

- BOUNDARY LINE
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- PROPOSED SURFACE WATER PIPE
- PROPOSED FOUL WATER PIPE
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- THAMES WATER SURFACE/FOUL WATER SEWER MANHOLES
- PROPOSED 1.2m DIA. FOUL/SURFACE WATER MANHOLES ACCESS COVER TO BE 600x600 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- PROPOSED 0.6m DIA. FOUL/SURFACE INSPECTION CHAMBERS ACCESS COVER TO BE 450x450 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- SURFACE WATER FLOW CONTROL DEVICE LIMITING DISCHARGE TO PUBLIC SEWER
- ACO CHANNEL TO LANDSCAPE ARCHITECTS DETAILS
- PERMEABLE PAVING LAYOUT
- RG PROPOSED ROAD GULLY
- RWP RAIN WATER PIPE
- SVP SOIL VENT PIPE
- RE RODDING EYE
- BD BACKDROP MANHOLE
- AJ ARMSTRONG JUNCTION
- UTR UNABLE TO RAISE



KEY PLAN

REV	DATE	DESCRIPTION	BY	APP
C04	15.06.26	Revised as Clouded	TH	RS
C03	20.05.26	Drainage Runs Revised due to Foundation and Existing Live Services- Revised as Clouded	VH	RS
C02	27.04.26	Attenuation Tank Updated and Revised as Clouded	VH	RS
C01	10.04.26	Issued for Construction	VH	RS
PO3	30.03.26	Channel drains added to terraces; changes clouded	VH	RS
PO2	13.03.26	Issued for information	VH	RS
PO1	27.02.26	Issued for information	VH	RS

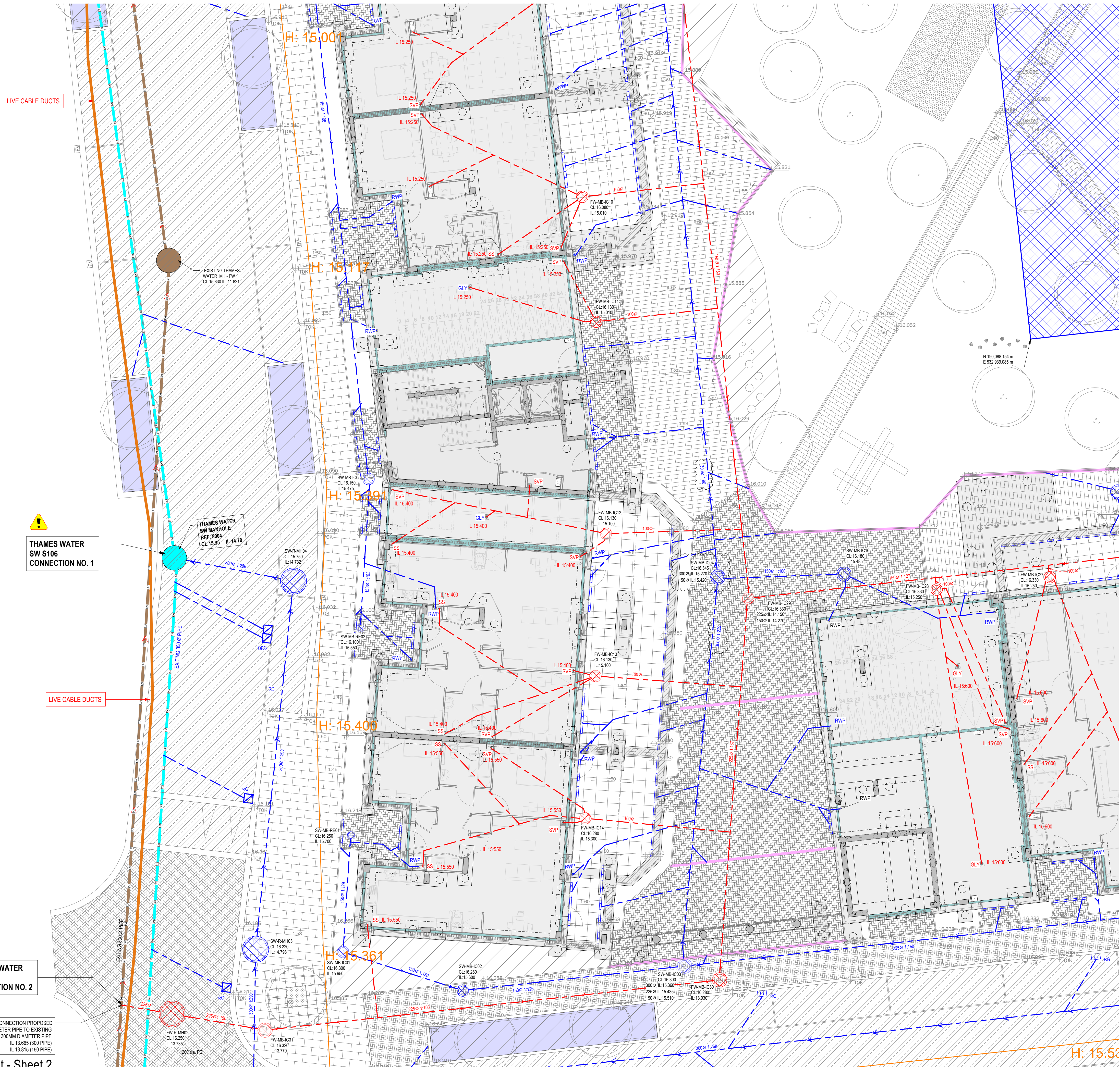
PROJECT: Tangmere

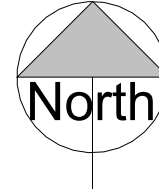
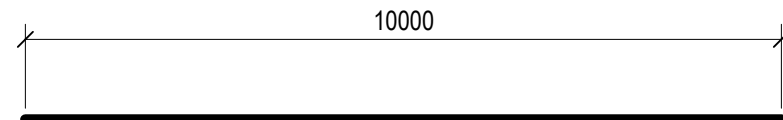
TITLE: Site Wide Drainage Layout - Sheet 2

CLIENT: Formation D&B Ltd



DRAWN: VH	CHECKED: DO	APPROVED: RS
PROJECT NUMBER: 26015	DATE: 27/02/26	SCALE @ A1: As indicated
STATUS DESCRIPTION: FOR CONSTRUCTION		STATUS: A
DRAWING NUMBER: TAN-MWP-XX-00-DR-CV-2112	REV: C04	



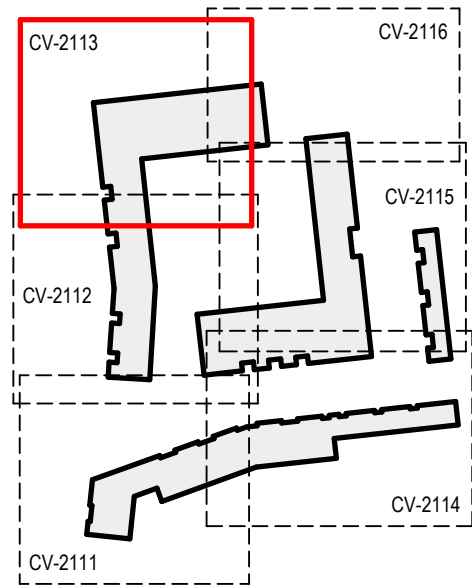


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P04	30.03.26	Channel drains added to terraces; changes clouded	VH	RS
P03	13.03.26	Issued for information	VH	RS
P02	13.02.26	Revised As Indicated	TH	RS
P01	27.02.26	Issued for information	VH	RS

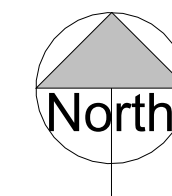
PROJECT: Tangmere

TITLE: Site Wide Drainage Layout - Sheet 3

CLIENT: Formation D&B Ltd



DRAWN: VH	CHECKED: DO	APPROVED: RS
PROJECT NUMBER: 26015	DATE: 27/02/26	SCALE @ A1: As indicated
STATUS DESCRIPTION: FOR CONSTRUCTION		STATUS: A
DRAWING NUMBER: TAN-MWP-XX-00-DR-CV-2113		REV: C04

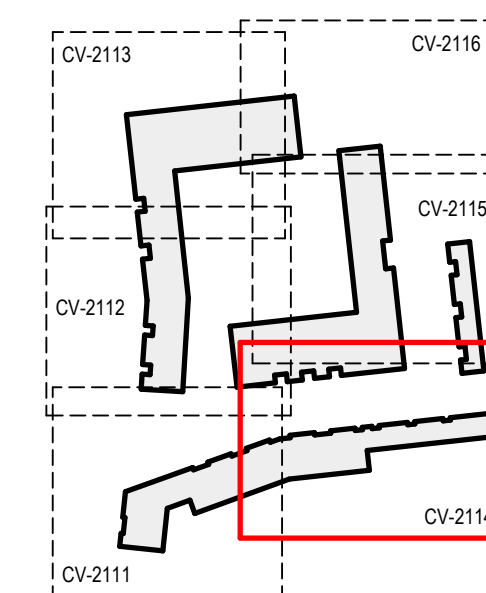


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6. ALL TEMPORARY WORKS TO CONTRACTORS DETAILS.
7. CONTRACTOR TO APPROVE ALL SET OUT INFORMATION PRIOR TO CONSTRUCTION.

DRAINAGE LEGEND

- BOUNDARY LINE
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- PROPOSED SURFACE WATER PIPE
- PROPOSED FOUL WATER PIPE
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- THAMES WATER SURFACE/FOUL WATER SEWER MANHOLES
- PROPOSED 1.2m DIA. FOUL/SURFACE WATER MANHOLES ACCESS COVER TO BE 600x600 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- PROPOSED 0.6m DIA. FOUL/SURFACE INSPECTION CHAMBERS ACCESS COVER TO BE 450x450 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- SURFACE WATER FLOW CONTROL DEVICE LIMITING DISCHARGE TO PUBLIC SEWER
- ACO CHANNEL TO LANDSCAPE ARCHITECTS DETAILS
- PERMEABLE PAVING LAYOUT
- RG PROPOSED ROAD GULLY
- RWP RAIN WATER PIPE
- SVP SOIL VENT PIPE
- RE RODDING EYE
- BD BACKDROP MANHOLE
- AJ ARMSTRONG JUNCTION
- UTR UNABLE TO RAISE



KEY PLAN

REV	DATE	DESCRIPTION	BY	APP
C04	15.06.26	General Updates to Town House Drainage	TH	RS
C03	20.05.26	Drainage Runs Revised due to Foundation and Existing Live Services- Revised as Clouded	VH	RS
C02	27.04.26	Attenuation Tank Updated and Revised as Clouded	VH	RS
C01	10.04.26	Issued for Construction	VH	RS
P03	30.03.26	Issued for Information	VH	RS
P02	13.03.26	Issued for Information	VH	RS
P01	27.02.26	Issued for Information	VH	RS

PROJECT: TANGMERE

Tangmere

TITLE:

Site Wide Drainage Layout - Sheet 4

CLIENT:

Formation D&B Ltd

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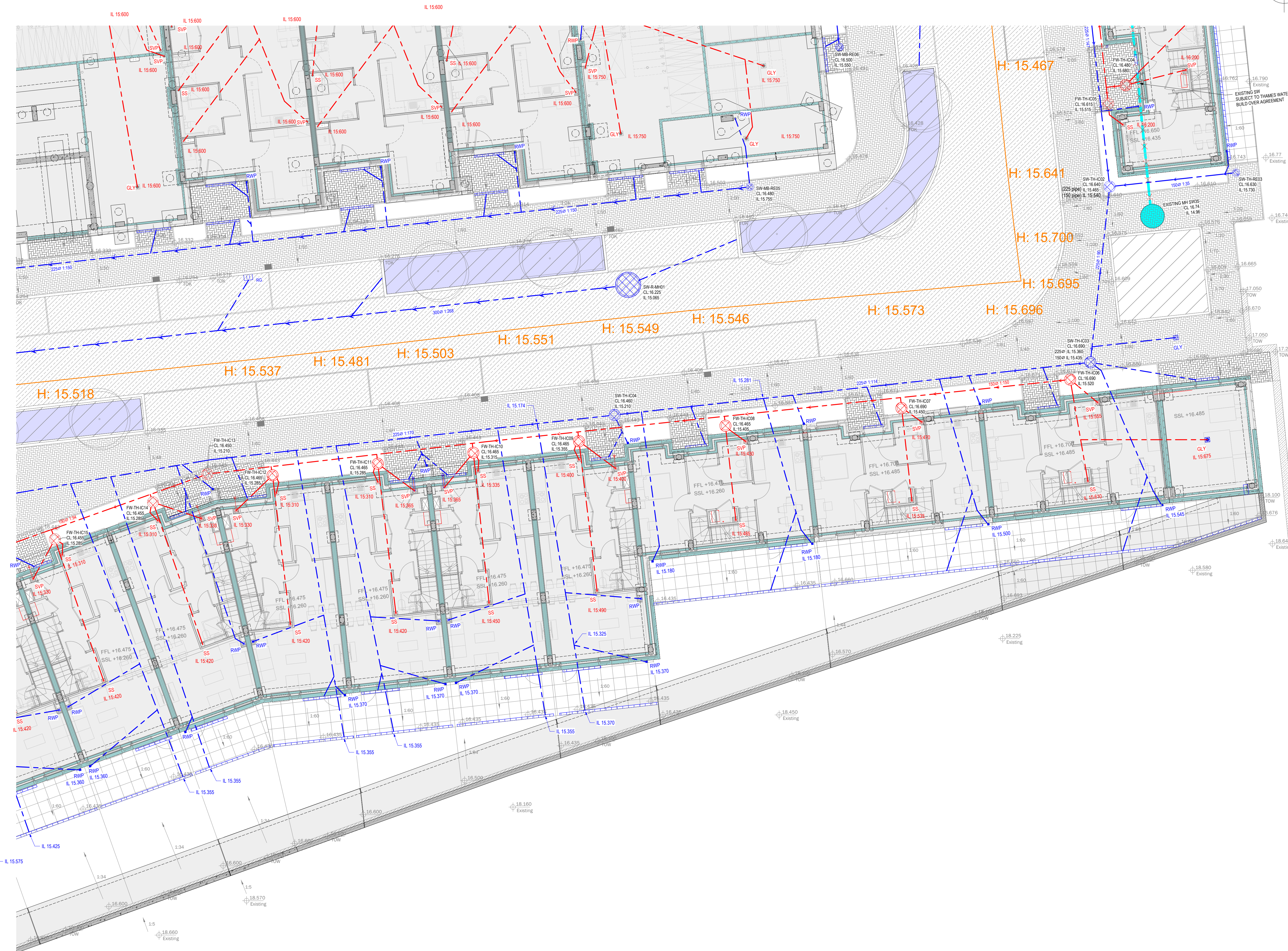
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DRAWN: VH CHECKED: DO APPROVED: RS

PROJECT NUMBER: 26015 DATE: 27/02/26 SCALE @ A1: As indicated

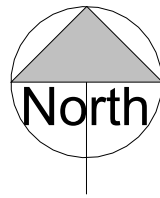
STATUS DESCRIPTION: FOR CONSTRUCTION STATUS: A

DRAWING NUMBER: TAN-MWP-XX-00-DR-CV-2114 REV: C04



Site Wide Drainage Layout - Sheet 4

SCALE 1:100

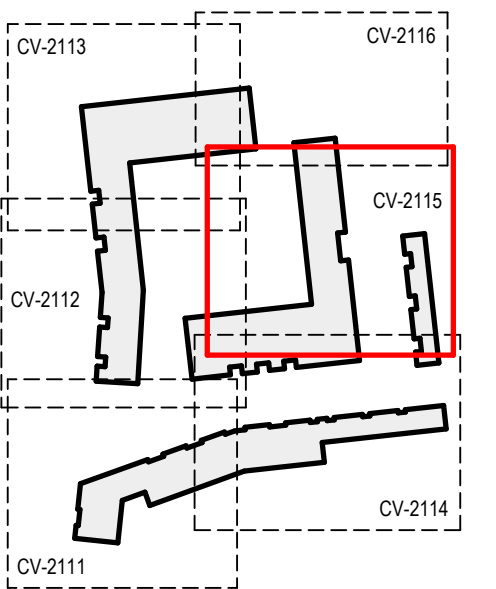


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7. CONTRACTOR TO APPROVE ALL SET OUT INFORMATION PRIOR TO CONSTRUCTION.

DRAINAGE LEGEND

- BOUNDARY LINE
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- PROPOSED SURFACE WATER PIPE
- PROPOSED FOUL WATER PIPE
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
- THAMES WATER SURFACE/FOUL WATER SEWER MANHOLES
- PROPOSED 1.2m DIA. FOUL/SURFACE WATER MANHOLES ACCESS COVER TO BE 600x600 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- PROPOSED 0.6m DIA. FOUL/SURFACE INSPECTION CHAMBERS ACCESS COVER TO BE 450x450 WITH DOUBLE SEALED RECESSED MANHOLE COVER
- SURFACE WATER FLOW CONTROL DEVICE LIMITING DISCHARGE TO PUBLIC SEWER
- ACO CHANNEL TO LANDSCAPE ARCHITECTS DETAILS
- PERMEABLE PAVING LAYOUT
- RG PROPOSED ROAD GULLY
- RWP RAIN WATER PIPE
- SVP SOIL VENT PIPE
- RE RODDING EYE
- BD BACKDROP MANHOLE
- AJ ARMSTRONG JUNCTION
- UTR UNABLE TO RAISE



KEY PLAN

REV	DATE	DESCRIPTION	BY	APP
C04	15.06.26	Revised as Clouded	TH	RS
C03	20.05.26	Drainage Runs Revised due to Foundation and Existing Live Services- Revised as Clouded	VH	RS
C02	27.04.26	Attenuation Tank Updated and Revised as Clouded	VH	RS
C01	10.04.26	Issued for Construction	VH	RS
PO3	30.03.26	Channel drains added to terraces; changes clouded	VH	RS
PO2	13.03.26	Issued for information	VH	RS
PO1	27.02.26	Issued for information	VH	RS

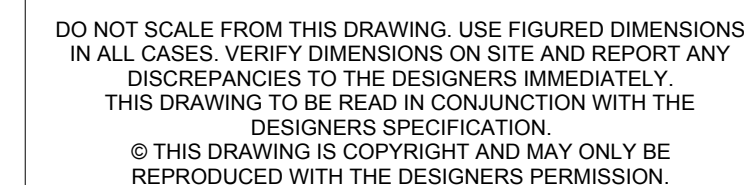
PROJECT: Tangmere

TITLE: Site Wide Drainage Layout - Sheet 5

CLIENT: Formation D&B Ltd



DRAWN: VH	CHECKED: DO	APPROVED: RS
PROJECT NUMBER: 26015	DATE: 27/02/26	SCALE @ A1: As indicated
STATUS DESCRIPTION: FOR CONSTRUCTION		STATUS: A
DRAWING NUMBER: TAN-MWP-XX-00-DR-CV-2115	REV: C04	



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5. DRAWINGS ARE NOT TO BE SCALED.
6. ALL TEMPORARY WORKS TO CONTRACTORS DETAILS.
7. CONTRACTOR TO APPROVE ALL SET OUT INFORMATION PRIOR TO CONSTRUCTION.

	BOUNDARY LINE
	EXISTING FOUL WATER SEWER
	EXISTING SURFACE WATER SEWER
	PROPOSED SURFACE WATER PIPE
	PROPOSED FOUL WATER PIPE
	EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
	EXISTING SEWER TO BE ABANDONED & REMOVED & DIVERTED
	THAMES WATER SURFACE/FOUL WATER SEWER MANHOLES
	PROPOSED 1.2m DIA. FOUL/SURFACE WATER MANHOLES ACCESS COVER TO BE 600x600 WITH DOUBLE SEALED RECESSED MANHOLE COVER
	PROPOSED 0.6m DIA. FOUL/SURFACE INSPECTION CHAMBERS ACCESS COVER TO BE 450x450 WITH DOUBLE SEALED RECESSED MANHOLE COVER
	SURFACE WATER FLOW CONTROL DEVICE LIMITING DISCHARGE TO PUBLIC SEWER
	ACC CHANNEL TO LANDSCAPE ARCHITECTS DETAILS
	PERMEABLE PAVING LAYOUT
RG	PROPOSED ROAD GULLY
RWP	RAIN WATER PIPE
SVP	SOIL VENT PIPE
RE	RODDING EYE
BD	BACKDROP MANHOLE
AJ	ARMSTRONG JUNCTION
UTR	UNABLE TO RAISE



C05	15.06.26	Revised as Clouded		TH	R
C04	20.05.26	Drainage Runs Revised due to Foundation and Existing Live Services- Revised as Clouded		VH	R
C03	27.04.26	Attenuation Tank Updated and Revised as Clouded		VH	R
C02	13.04.26	Revised as Clouded		VH	R
C01	10.04.26	Issued for Construction		VH	R
P03	30.03.26	Channel drains added to terraces; channels clouded		VH	R
P02	13.03.26	Issued for information		VH	R
P01	27.02.26	Issued for information		VH	R
REV	DATE	DESCRIPTION		BY	APP

TITLE:

Site Wide Drainage Layout - Sheet 6

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PROJECT NUMBER: 26015	DATE: 27/02/26	SCALE @ A1: As indicated
STATUS DESCRIPTION: FOR CONSTRUCTION		STATUS: A
DRAWING NUMBER: TAN-MWP-XX-00-DR-CV-2116		REV: C05



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MAIN BUILDING FOUL WATER MANHOLE SCHEDULE								
MH REF	Cover LVL. (m)	Invert LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Easting (To Centre)(m)	Northing (To Centre)(m)
FW-MB-IC01	16.140	14.865	D400	1.275	0.450	PPIC	532938.477 m	190121.126 m
FW-MB-IC02	16.150	14.500	D400	1.650	0.600	PPIC	532937.819 m	190114.138 m
FW-MB-IC03	16.140	14.510	D400	1.630	0.450	PPIC	532933.443 m	190116.875 m
FW-MB-IC04	16.140	14.510	D400	1.630	0.450	PPIC	532926.290 m	190116.084 m
FW-MB-IC05	16.140	14.665	D400	1.475	0.450	PPIC	532920.028 m	190115.393 m
FW-MB-IC06	16.130	14.380	D400	1.750	0.450	PPIC	532920.397 m	190112.213 m
FW-MB-IC07	16.150	15.000	D400	1.150	0.450	PPIC	532912.388 m	190122.962 m
FW-MB-IC08	16.000	14.800	D400	1.200	0.450	PPIC	532913.675 m	190111.471 m
FW-MB-IC09	16.080	15.010	D400	1.070	0.450	PPIC	532914.644 m	190106.511 m
FW-MB-IC10	16.080	15.010	D400	1.070	0.450	PPIC	532915.857 m	190099.529 m
FW-MB-IC11	16.130	15.010	D400	1.120	0.450	PPIC	532916.572 m	190089.055 m
FW-MB-IC12	16.130	15.100	D400	1.030	0.450	PPIC	532917.080 m	190078.069 m
FW-MB-IC13	16.130	15.100	D400	1.030	0.450	PPIC	532916.535 m	190070.685 m
FW-MB-IC14	16.280	15.300	D400	0.980	0.450	PPIC	532916.006 m	190063.311 m
FW-MB-IC15	16.085	14.800	D400	1.285	0.450	PPIC	532953.911 m	190116.844 m
FW-MB-IC16	16.120	14.970	D400	1.150	0.450	PPIC	532956.404 m	190115.502 m
FW-MB-IC17	16.190	14.840	D400	1.350	0.450	PPIC	532956.991 m	190110.195 m
FW-MB-IC18	16.190	14.790	D400	1.400	0.450	PPIC	532958.308 m	190098.268 m
FW-MB-IC19	16.190	14.840	D400	1.350	0.450	PPIC	532958.846 m	190093.397 m
FW-MB-IC20	16.190	14.840	D400	1.350	0.450	PPIC	532959.185 m	190090.119 m
FW-MB-IC21	16.190	14.840	D400	1.350	0.450	PPIC	532959.679 m	190085.647 m
FW-MB-IC22	16.350	15.480	D400	0.870	0.450	PPIC	532961.221 m	190070.357 m
FW-MB-IC23	16.255	14.950	D400	1.305	0.450	PPIC	532959.190 m	190080.129 m
FW-MB-IC24	16.085	14.405	D400	1.680	0.450	PPIC	532957.260 m	190078.325 m
FW-MB-IC25	16.330	15.250	D400	1.080	0.450	PPIC	532954.378 m	190077.397 m
FW-MB-IC26	16.330	15.250	D400	1.080	0.450	PPIC	532947.205 m	190076.637 m
FW-MB-IC27	16.330	15.250	D400	1.080	0.450	PPIC	532940.082 m	190075.811 m
FW-MB-IC28	16.330	15.250	D400	1.080	0.450	PPIC	532934.217 m	190075.163 m
FW-MB-IC29	16.330	14.150	D400	2.180	0.450	PPIC	532924.453 m	190074.713 m
FW-MB-IC30	16.280	13.930	D400	2.350	0.600	PPIC	532922.969 m	190054.934 m
FW-MB-IC31	16.320	13.770	D400	2.550	0.600	PPIC	532899.413 m	190052.331 m

MAIN BUILDING STORM WATER MANHOLE SCHEDULE								
MH REF	Cover LVL. (m)	Invert LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Easting (To Centre)(m)	Northing (To Centre)(m)
SW-MB-IC01	16.300	15.650	D400	0.650	0.450	PPIC	532903.454 m	190056.384 m
SW-MB-IC02	16.280	15.600	D400	0.680	0.450	PPIC	532909.661 m	190054.381 m
SW-MB-IC03	16.300	15.360	D400	0.940	0.600	PPIC	532921.159 m	190055.652 m
SW-MB-IC04	16.345	15.270	D400	1.075	0.600	PPIC	532922.879 m	190075.821 m
SW-MB-IC05	16.150	15.475	D400	0.675	0.450	PPIC	532904.772 m	190080.898 m
SW-MB-IC06	16.000	15.180	D400	0.820	0.450	PPIC	532901.273 m	190112.541 m
SW-MB-IC07	16.130	14.865	D400	1.265	0.600	PPIC	532919.267 m	190114.530 m
SW-MB-IC08	16.150	15.030	D400	1.120	0.450	PPIC	532938.763 m	190134.761 m
SW-MB-IC09	16.140	14.730	D400	1.410	0.600	PPIC	532940.336 m	190116.901 m
SW-MB-IC10	16.165	15.365	D400	0.800	0.600	PPIC	532943.595 m	190080.227 m
SW-MB-IC11	16.275	15.390	D400	0.885	0.450	PPIC	532972.455 m	190082.508 m
SW-MB-IC12	16.290	15.140	D400	1.150	0.600	PPIC	532959.212 m	190081.963 m
SW-MB-IC13	16.200	15.535	D400	0.665	0.450	PPIC	532969.616 m	190108.207 m
SW-MB-IC14	16.150	14.955	D400	1.195	0.600	PPIC	532956.475 m	190106.755 m
SW-MB-IC15	16.085	15.185	D400	0.900	0.450	PPIC	532954.786 m	190122.039 m
SW-MB-IC16	16.180	15.485	D400	0.695	0.600	PPIC	532929.413 m	190075.972 m
SW-MB-IC17	16.085	14.680	D400	1.405	0.600	PPIC	532949.486 m	190113.233 m
SW-MB-RE01	16.250	15.700	D400	0.550	0.250		532903.855 m	190062.423 m
SW-MB-RE02	16.100	15.550	D400	0.550	0.250		532904.344 m	190073.168 m
SW-MB-RE03	16.150	15.550	D400	0.600	0.250		532900.436 m	190120.116 m
SW-MB-RE04	16.150	15.350	D400	0.800	0.250		532902.146 m	190130.715 m
SW-MB-RE05	16.480	15.755	D400	0.725	0.250		532969.232 m	190060.963 m
SW-MB-RE06	16.500	15.550	D400	0.950	0.250		532974.011 m	190068.423 m
SW-MB-RE07	16.200	15.600	D400	0.600	0.250		532971.043 m	190095.293 m
SW-MB-RE08	16.200	15.600	D400	0.600	0.250		532969.964 m	190105.059 m
SW-MB-RE09	16.200	15.600	D400	0.600	0.250		532968.764 m	190115.921 m
SW-MB-RE10	16.085	15.295	D400	0.790	0.250		532959.296 m	190122.537 m

ROAD FOUL WATER MANHOLE SCHEDULE								
MH REF	Cover LVL. (m)	Invert LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Easting (To Centre)(m)	Northing (To Centre)(m)
FW-R-MH01	17.050	14.865	D400	2.185	1.200	PC	532893.087 m	190032.204 m
FW-R-MH02	16.250	13.735	D400	2.515	1.200	PC	532894.594 m	190053.171 m
FW-R-MH03	16.330	14.075	D400	2.255	1.200	PC	532975.142 m	190086.542 m

ROAD STORM WATER MANHOLE SCHEDULE								
MH REF	Cover LVL. (m)	Cover LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Easting (To Centre)(m)	Northing (To Centre)(m)
SW-R-MH01	16.225	15.065	D400	1.160	1.200	PC	532962.735 m	190055.740 m
SW-R-MH02	16.250	14.825	D400	1.425	1.200	PC	532898.796 m	190048.654 m
SW-R-MH03	16.220	14.798	D400	1.422	1.200	PC	532898.923 m	190056.521 m
SW-R-MH04	15.750	14.732	D400	1.018	1.200	PC	532900.887 m	190075.609 m
SW-R-MH05	16.150	14.650	D400	1.500	1.200	PC	532978.491 m	190083.086 m
SW-R-MH06	15.700	14.275	D400	1.425	1.200	PC	532972.365 m	190138.535 m
SW-R-MH07	16.140	13.760	D400	2.380	1.200	PC	532954.350 m	190137.495 m

TOWN HOUSE FOUL WATER MANHOLE SCHEDULE								
MH REF	Cover LVL. (m)	Cover LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Easting (To Centre)(m)	Northing (To Centre)(m)
FW-TH-IC01	16.330	15.400	D400	0.930	0.450	PPIC	532986.987 m	190088.403 m
FW-TH-IC02	16.325	15.365	D400	0.960	0.450	PPIC	532985.885 m	190087.724 m
FW-TH-IC03	16.480	15.580	D400	0.900	0.450	PPIC	532988.130 m	190077.284 m
FW-TH-IC04	16.480	15.680	D400	0.800	0.450	PPIC	532989.286 m	190066.388 m
FW-TH-IC05	16.615	15.515	D400	1.100	0.450	PPIC	532988.351 m	190065.397 m
FW-TH-IC06	16.690	15.520	D400	1.170	0.450	PPIC	532986.322 m	190050.688 m
FW-TH-IC07	16.690	15.450	D400	1.240	0.450	PPIC	532977.319 m	190049.165 m
FW-TH-IC08	16.465	15.405	D400	1.060	0.450	PPIC	532967.927 m	190048.224 m
FW-TH-IC09	16.465	15.355	D400	1.110	0.450	PPIC	532960.112 m	190047.396 m
FW-TH-IC10	16.465	15.315	D400	1.150	0.450	PPIC	532954.476 m	190046.786 m
FW-TH-IC11	16.465	15.285	D400	1.180	0.450	PPIC	532949.377 m	190046.198 m
FW-TH-IC12	16.465	15.285	D400	1.180	0.450	PPIC	532943.763 m	190045.580 m
FW-TH-IC13	16.450	15.210	D400	1.240	0.450	PPIC	532940.284 m	190045.649 m
FW-TH-IC14	16.455	15.285	D400	1.170	0.450	PPIC	532937.383 m	190044.139 m
FW-TH-IC15	16.455	15.285	D400	1.170	0.450	PPIC	532932.146 m	190042.171 m
FW-TH-IC16	16.455	15.285	D400	1.170	0.450	PPIC	532927.245 m	190040.395 m
FW-TH-IC17	16.670	15.500	D400	1.170	0.450	PPIC	532921.923 m	190038.501 m
FW-TH-IC18	16.690	15.500	D400	1.190	0.450	PPIC	532917.090 m	190036.750 m
FW-TH-IC19	16.915	15.500	D400	1.415	0.450	PPIC	532909.388 m	190034.002 m
FW-TH-IC20	17.130	14.915	D400	2.215	0.450	PPIC	532899.218 m	190030.550 m
FW-TH-IC21	17.745	16.475	D400	1.270	0.450	PPIC	532898.597 m	190023.984 m
FW-TH-IC22	17.730	16.275	D400	1.455	0.450	PPIC	532897.561 m	190020.638 m

TOWN HOUSE STORM WATER MANHOLE SCHEDULE									
MH REF	Cover LVL. (m)	Invert LVL. (m)	Load Class	Manhole Depth (m)	Internal MH DIA (m)	Manhole Type	Notes	Easting (To Centre)(m)	Northing (To Centre)(m)
SW-TH-IC01	16.490	15.615	D400	0.875	0.450	PPIC		532986.002 m	190082.941 m
SW-TH-IC02	16.640	15.465	D400	1.175	0.450	PPIC		532988.429 m	190060.974 m
SW-TH-IC03	16.690	15.360	D400	1.330	0.450	PPIC		532987.398 m	190051.605 m
SW-TH-IC04	16.460	15.210	D400	1.250	0.450	PPIC		532962.013 m	190048.800 m
SW-TH-IC05	17.000	15.450	D400	1.550	0.450	PPIC	CATCHPIT MH	532916.163 m	190027.206 m
SW-TH-IC06	17.300	15.465	D400	1.835	0.450	PPIC		532898.382 m	190032.105 m
SW-TH-IC07	16.435	15.160	D400	1.275	0.450	PPIC		532927.219 m	190042.206 m
SW-TH-IC08	16.200	15.005	D400	1.195	0.450	PPIC		532927.523 m	190044.190 m
SW-TH-IC09	17.650	16.500	D400	1.150	0.450	PPIC	CATCHPIT MH	532898.562 m	190015.161 m
SW-TH-IC10	17.730	16.474	D400	1.256	0.450			532896.274 m	190016.095 m
SW-TH-IC11	16.555	15.350	D400	1.205	0.450	PPIC		532924.058 m	190039.239 m
SW-TH-IC12	16.455	15.245	D400	1.210	0.450	PPIC		532926.072 m	190039.955 m
SW-TH-MH01	16.585	14.982	D400	1.603	1.200	PC		532904.799 m	190043.213 m
SW-TH-MH02	16.350	14.370	D400	1.980	1.200	PC		532986.861 m	190096.989 m
SW-TH-RE01	16.330	15.687	D400	0.643	0.250			532984.663 m	190095.067 m
SW-TH-RE02	16.330	15.680	D400	0.650	0.250			532992.791 m	190083.712 m
SW-TH-RE03	16.630	15.730	D400	0.900	0.250			532995.168 m	190061.719 m

Appendix B

Topographical Survey